AD-A128 175 THE INFLUENCE OF NEUROACTIVE PEPTIDES ON PHYSIOLOGICAL PROCESSES IN THE H..(U) DUKE UNIV MEDICAL CENTER DURHAM NC P G KAUFMANN ET AL. 15 APR 83 N00014-83-K-0105 1/1

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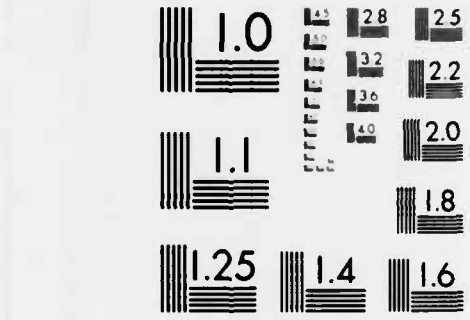

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Final Report

April 15, 1983

The Influence of Neuroactive Peptides on Physiological Processes in the Hippocampus Related to Memory

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Contract No. : N00014-83-K-0105

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Duke Requisition : 393-3097

This report is for the period 1 January 1983 to 15 April 1983. It is a brief statement of progress for work under this contract during that time.

The work which has been performed with respect to this projector includes minor equipment check-out and electrode construction, as well as a substantial investment in preparation and implementation of a Data Acquisition and Retrieval Software Package targeted for use with the PDP-MINC laboratory computer. The described software would allow rapid and accurate data collection and analysis.

Under the direction of one program, two channels of biological waveform data can be sampled at a rate of 200 μs/sample for 512 samples, and stored in a buffer interval to the program. Data is displayed as two traces on a graphics device (Matrox) and subsequently stored onto a floppy disk for later analysis.

A second program, which saves as the foundation for future data analysis routines, reads the floppy disk data back into interval buffers and re-displays them on the graphics device. It also includes a routine to allow

the waveform values to be indicated with a moveable cursor. Both programs were written with operator options expressed in a 'menu' format, and detailed in the following description.

Data Acquisition Routines Menu

1. Create filename and run number.
   All files have up to a six character or number name and up to a three number extension. The filename consists of three sections: an experiment and data set identifier for the six character part, and a run number for the three character part. The first two sections remain the same for each run while the run number is automatically incremented by the program upon each new trigger pulse.

2. Input data on trigger and display.
   Upon the receipt of a trigger pulse arriving at the schmidt trigger, the data collection routine will run and collect two channels of data at a rate of 100 μs per sample for 512 samples. These samples are stored in a Fortran buffer which is then read into the grahics device as two separate horizontal traces. Once this is done the program is ready for another trigger pulse. Since trigger pulses are to occur every three seconds no data overrun is likely to occur. If a trigger occurs too soon it is ignored. This routine is aborted, with a subsequent return to the menu presentation, when the operator strokes any key on the terminal.

3. Input data on trigger and display and store.
   This routine is just like the above routine in all respects except that it also stores the acquired data on floppy disks using the filename generated earlier. Each time sampled data is stored the run number part of the filename is incremented.

4. Calibrate the A/D Converters.
   A calibration is necessary to relate the voltage changes seen by the A/Ds to real world values. This is done by inputting a standard amplitude level or pulse and then giving its value in the decimal units of measure. The computer prompts the operator for both the input signal and the associated value.

5. Exit the program.
   This routine exists the program and returns control of the computer to th RT-11 operating system.

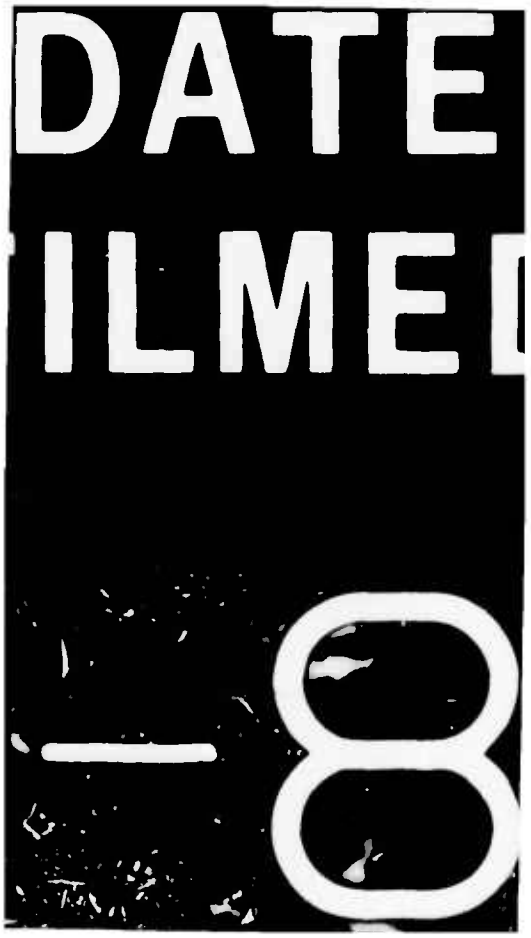
Data Retrieval

1. Read a file into the buffer.
   This routine allows the operator to specify which file, residing on the floppy disk, to load into the Fortran data buffer area for later analysis and/or display.

2. Display contents of buffer.
   This displays the contents of the Fortran data buffer on the Matrox in exactly the same manner as in the data acquisition program.

3. Cursor manipulator.
   A cursor that can indicate points of interest was designed, enabling the operator to enter these values into analysis routines. This cursor routine reads the potentiometer that the operator controls and positions a marker on the display above the actual data trace so as to read back to the operator (and future analysis routines) the actual data buffer value corresponding to that position. The operator returns to the menu presentation by striking any key on the terminal.

4. Copy screen to printer.
   This routine copies the contents of the Matrox graphics screen to a line printer, thus giving hard copy of the contents of the video screen including the two traces and any cursor marks.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